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## *SUBJECTIVE EXPOSURE TO ENVIRONMENTAL TOBACCO SMOKE AND TOBACCO USE AMONG U.S. NAVY ATLANTIC FLEET AIRCRAFT CARRIER PERSONNEL*

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**Subjective Exposure to Environmental Tobacco Smoke and Tobacco Use  
Among U.S. Navy Atlantic Fleet Aircraft Carrier Personnel**

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## SUMMARY

### Problem and Objective

In September 1992, the Commander Naval Air Force, U.S. Atlantic Fleet, introduced an extensively revised restrictive smoking policy, establishing a "no-smoking environment" within all U.S. Atlantic Fleet facilities, including aircraft carriers. The purpose of this study was to document crew members' subjective exposure to environmental tobacco smoke (ETS), smoking behavior, and attitudes regarding smoking policy aboard U.S. Atlantic Fleet carriers during a time of increased restrictions on tobacco use and to examine differences in exposure to ETS, tobacco use behavior, and attitudes between ships.

### Approach

All crew members aboard six aircraft carriers in the U.S. Atlantic Fleet were asked to participate in a survey in June 1993 and again approximately one year later in August 1994. The survey items covered subjective exposure to ETS, self-reported current tobacco use and history of tobacco use, crew attitudes related to smoking policy, and demographics. The ships' Senior Medical Officers distributed the surveys aboard ship.

### Results

Overall, general exposure to ETS was relatively low and significantly decreased over time. The overall percentage of current smokers remained steady at 34% in both 1993 and 1994. In general there were positive increases in attitudes regarding the ship's smoking policies; however, there was a decrease in the perceived level of command-provided smoking cessation support over time. A comparison among individual ships revealed several significant differences regarding ETS exposure, smoking behavior, and attitudes. There were decreases in ETS exposure consistent across several measures over time for nonsmokers aboard *USS America* and *USS Theodore Roosevelt*. Participants aboard *USS Dwight D. Eisenhower* showed a significant decrease in the percentage of smokers over time. There was a decrease in the percentage of current smokeless tobacco users aboard *USS Saratoga* and an increase aboard *USS Theodore Roosevelt*. Although there were increases in the amount of perceived command-provided smoking cessation support for some ships, there were significant decreases seen among the participants aboard *USS America*, *USS Enterprise*, and *USS Roosevelt*.

## **Conclusions**

Findings from this study indicate that there were significant reductions in ETS exposure with more consistent reductions among ships that had greater declines in the number of designated smoking areas during the time of the study. All ships showed an increase in favorable attitudes toward the smoking restrictions with the exception of command-provided cessation support. There was very little change in the smoking rate among crew members aboard the six aircraft carriers during the time of the increased smoking restrictions. In addition, there was an increase in smokeless tobacco use among some ships. Recommendations include maintaining enforcement of the current smoking restrictions in order to keep ETS exposure at the reduced low level; emphasizing smokeless tobacco use prevention and cessation as part of a comprehensive tobacco use cessation program; increasing command-provided smoking cessation activities, raising crew members' awareness of these activities, and maintaining a high level of command support for participation in these activities.

## **Subjective Exposure to Environmental Tobacco Smoke and Tobacco Use Among U.S. Navy Atlantic Fleet Aircraft Carrier Personnel**

Cigarette smoking is related to approximately 400,000 deaths in the United States each year, accounting for one in every five deaths.<sup>1,2</sup> Use of other forms of tobacco are also associated with significantly elevated morbidity and mortality,<sup>3</sup> as is chronic exposure to environmental tobacco smoke (ETS).<sup>4,5</sup> Because of the negative health consequences of tobacco use and growing evidence of the health risks associated with ETS,<sup>6-8</sup> restrictive smoking policies have become widespread among many organizations and environments.<sup>9</sup>

Traditionally, the efficacy of worksite smoking policies has been assessed mainly in terms of their effect on employee smoking behavior. Several studies have shown that workplace smoking restrictions reduce cigarette use among employees; however, the estimates of change in use varies across studies and, in some cases, are accompanied by slight increases in smoking outside of the work environment.<sup>10-17</sup> While some studies have reported increases in smoking cessation following the implementation of a worksite smoking ban,<sup>11,12,14,15,17,18</sup> at least one study that utilized a control worksite found no evidence of change in smoking prevalence.<sup>13</sup>

Studies investigating the impact of smoking policies on ETS exposure generally have been more consistent. The majority of research to date suggests that exposure to ETS can be decreased by instituting a no-smoking policy. A recent study demonstrated a clear relationship between the level of smoking restrictions and the degree of exposure to ETS in California worksites.<sup>19</sup> The authors of this study concluded that the only way to fully protect nonsmokers' health in the workplace is with a smoke-free policy. Another evaluation found that nicotine vapor concentrations decreased significantly after the implementation of a smoke-free policy in a large medical center.<sup>20</sup> It would appear then that the primary benefit of a no-smoking policy in the work environment is to protect nonsmokers from the adverse effects of ETS, and it may have a positive secondary effect on smoking behavior.

The health and well-being of smokers and nonsmokers in the work setting has been at the forefront of this nation's public health agenda. The U.S. Navy is equally concerned, especially since many of its members are confined to ships and aircraft with closed air spaces. The impact of a no-smoking policy within the fleet would presumably be a more environmentally safe workplace and the promotion of a healthy lifestyle without tobacco use. While the U.S. Navy's current health promotion policy emphasizes creating a healthy work environment that discourages the use of tobacco products

and establishes appropriate environmental protective measures, it does not specify how the policy should be implemented aboard ship.<sup>21,22</sup> In September 1992, the Commander Naval Air Force, U.S. Atlantic Fleet (COMNAVAIRLANT), introduced an extensively revised Force smoking policy, establishing a "no-smoking environment" within all U.S. Atlantic Fleet facilities, including aircraft carriers.<sup>23</sup> Although smoking was permitted aboard the carriers, it was restricted to a limited number of spaces that exhausted directly overboard and did not compromise the rights of nonsmokers. The policy also directed commanding officers of fleet aircraft carriers to set nonsmoking as a goal to be achieved at the earliest possible date.

Ideally, if a restrictive smoking policy like that implemented by COMNAVAIRLANT reduced exposure to ETS and thereby improved working conditions aboard ship, similar policies would be implemented throughout the fleet. The purpose of this study therefore, was to assess the efficacy of the current restrictive smoking policy among the aircraft carriers assigned to COMNAVAIRLANT. The specific objectives of this study were to (a) assess trends in exposure to ETS, tobacco use behavior, and attitudes over a one-year period; and (b) examine differences in exposure to ETS, tobacco use behavior, and attitudes among ships.

## METHOD

### Study Population and Procedures

The study population was approximately 3,000 crew members aboard each of six aircraft carriers in the U.S. Atlantic Fleet (a total of approximately 18,000 people). These ships included *USS America* (CV 66), *USS Dwight D. Eisenhower* (CVN 69), *USS Enterprise* (CVN 65), *USS Theodore Roosevelt* (CVN 71), *USS Saratoga* (CV 60), and *USS George Washington* (CVN 73). The assigned airwings and embarked Special Purpose Marine Air Ground Task Force personnel were not included in the study since they were not permanent members of the ships' crews. All 18,000 crew members were asked to participate in a survey in June 1993 and again approximately one year later in August 1994. Crew members could participate in the 1994 survey regardless of whether or not they participated in the 1993 survey. The ships' Senior Medical Officers distributed the surveys aboard ship.

## Survey Instrument

The two similar surveys were 4-page, self-administered, anonymous questionnaires (Appendix A). The survey items were grouped into four categories: (a) subjective exposure to ETS, (b) self-reported current tobacco use and history of tobacco use, (c) crew attitudes related to smoking policy, and (d) demographics. ETS exposure and smoking status measures were of particular interest and are described as follows. General nonsmoker ETS exposure was measured using two questions: "How would you rate your overall exposure to other people's tobacco smoke aboard ship?" Response choices were (1) low, (2) moderate, and (3) heavy, and "How often are you exposed to other people's tobacco smoke aboard ship?" Response choices were (1) almost never, (2) seldom, (3) sometimes, (4) often, and (5) frequently. Current smoking status was assessed using the question "Have you smoked at least 100 cigarettes in your life?" and by asking participants to classify themselves as a never, former, or current smoker. Those participants who had smoked at least 100 cigarettes and had classified themselves as current smokers were considered smokers. Participants who answered no or classified themselves as never or former smokers were considered nonsmokers. A complete description of all survey items is described elsewhere.<sup>24</sup>

## Smoking Restrictions

Information about the ships' smoking restrictions was collected in a brief survey to each ship's Senior Medical Officer. During the year between the administration of the two crew member surveys the number of designated smoking areas aboard the ships generally decreased in response to the revised Force smoking policy that was established in 1992 (Table 1). Smoking was banned completely aboard one carrier, *USS Theodore Roosevelt*, on July 4, 1993, for a period of about 4 months. Smoking was allowed onboard *USS Theodore Roosevelt* again in October 1993, in accordance with new Navy tobacco use policy that states all surface ships must have at least one designated smoking area aboard ship; not to encourage smoking, but to provide a safe location for smokers.<sup>25</sup>

Table 1.-Designated Smoking Areas Aboard U.S. Atlantic Fleet Carriers

| <u>Ship</u>                     | <u>No. of Smoking Areas</u> |                  |
|---------------------------------|-----------------------------|------------------|
|                                 | <u>June 93</u>              | <u>August 94</u> |
| <i>USS America</i>              | 21                          | 2                |
| <i>USS Dwight D. Eisenhower</i> | 5                           | 4                |
| <i>USS Enterprise</i>           | 2                           | 1                |
| <i>USS Theodore Roosevelt</i>   | 10                          | 1                |
| <i>USS George Washington</i>    | 7                           | 6                |

Note: Data were not available for *USS Saratoga*.

### Analyses

Between-group analyses were conducted using one-way analysis of variance (ANOVA) tests for continuous variables and  $\chi^2$  tests for categorical variables to assess differences in the measures between the six ships for both June 1993 and August 1994 survey data. Within-group analyses were performed using independent and paired t-tests for continuous variables and  $\chi^2$  analyses and McNemar tests for categorical variables on both independent and paired samples to assess any changes in the measures from June 1993 to August 1994. The paired within-group analyses mainly were used to corroborate findings from the independent tests. These analyses were performed on participants who had both 1993 and 1994 data; thus, the sample sizes for these analyses were markedly reduced due to a high turnover rate among the ships' crews. Given the relatively large number of tests to be performed, the alpha level of significance was set at .01.

Results are organized by findings for the overall group and individual ships. Both of these sections are organized by the three major content areas of the survey: ETS exposure, tobacco use behavior, and attitudes. Within each area, significant between-group differences are presented for both June 1993 and August 1994 data. Then, within-group analyses are presented; significant changes from 1993 to 1994 for independent samples for each ship are presented, followed by general results for paired samples.

## RESULTS

### Participation Rate and Participants

The overall response rate for the June 1993 survey was 56% (9,996/18,000) and 46% (8,348/18,000) for the August 1994 survey. A total of 2,454 crew members participated in both surveys. Response rates for the individual ships ranged from 75% to 32% for the 1993 survey, and the 1994 response rates ranged from 57% to 15% (Table 2).

Table 2.-Response Rates to Tobacco Surveys Aboard U.S. Atlantic Fleet Carriers

| Ship                            | Date of survey |           |
|---------------------------------|----------------|-----------|
|                                 | June 93        | August 94 |
|                                 | n(%)           | n(%)      |
| <i>USS America</i>              | 1,730(58)      | 1,422(47) |
| <i>USS Dwight D. Eisenhower</i> | 966(32)        | 1,470(49) |
| <i>USS Enterprise</i>           | 1,373(45)      | 1,715(57) |
| <i>USS Theodore Roosevelt</i>   | 2,215(74)      | 1,669(56) |
| <i>USS Saratoga</i>             | 1,450(48)      | 451(15)   |
| <i>USS George Washington</i>    | 2,254(75)      | 1,583(53) |
| Overall                         | 9,996(56)      | 8,348(46) |

Ninety-nine percent of the respondents had at least a high school education, and the mean age was 26 years at baseline (Table 3). The majority of the respondents were enlisted members with a median paygrade of E-4. Considering demographic differences among the ships in 1993, participants aboard *USS Saratoga* were slightly older than were participants aboard any of the other five ships in the study, and they had a higher level of education than did participants aboard *USS Dwight D. Eisenhower*. Participants aboard *USS Enterprise* had a higher level of education than did participants aboard *USS America* and *USS Dwight D. Eisenhower*, and they had a slightly higher median paygrade than did participants aboard *USS America*, *USS Dwight D. Eisenhower*, and *USS Theodore Roosevelt*.

Table 3.-Demographic Characteristics of U.S. Atlantic Fleet Tobacco Survey Respondents, 1993

|                                      |                  |
|--------------------------------------|------------------|
| Age (n = 9,932), mean±SD (range)     | 25.9±6.6 (18-52) |
| Education level (n = 9,926), %       |                  |
| < high school                        | .9               |
| High school                          | 57.8             |
| > high school                        | 41.3             |
| Paygrade (median = E4, n = 9,961), % |                  |
| E1-E3                                | 34.0             |
| E4-E6                                | 54.2             |
| E7-E9                                | 6.2              |
| W1-W4                                | .6               |
| O1-O3                                | 3.1              |
| O4-O6                                | 1.9              |
| Ethnicity (n = 9,898), %             |                  |
| White                                | 68.1             |
| African-American                     | 20.3             |
| Hispanic                             | 5.8              |
| Oriental/Asian/Filipino              | 2.0              |
| American Indian/Alaskan Native       | 1.7              |
| Other                                | 2.2              |
| Marital status (n = 9,968), %        |                  |
| Single                               | 42.5             |
| Married                              | 51.7             |
| Separated/divorced/widowed           | 5.8              |

### Overall Findings

**ETS exposure.** In general, nonsmokers rated their overall exposure to ETS between low and moderate in June 1993 and August 1994 (Fig 1). There was a significant decrease in the subjective overall exposure to ETS from 1993 to 1994 among nonsmokers across all of the carriers. In contrast, the overall frequency of exposure to ETS significantly increased among nonsmokers over time (Fig 2). Still, both the level of physical discomfort caused by ETS and how bothersome ETS was significantly decreased overall. Furthermore, the self-reported estimated number of minutes per day exposed to ETS aboard the ships was relatively low at approximately 12 min per day in 1993. This estimation decreased significantly to 8 min per day in 1994.

**Tobacco use behavior.** The overall percentage of self-reported, current cigarette smokers remained steady at 34% in both June 1993 and August 1994. Additionally, there were no significant

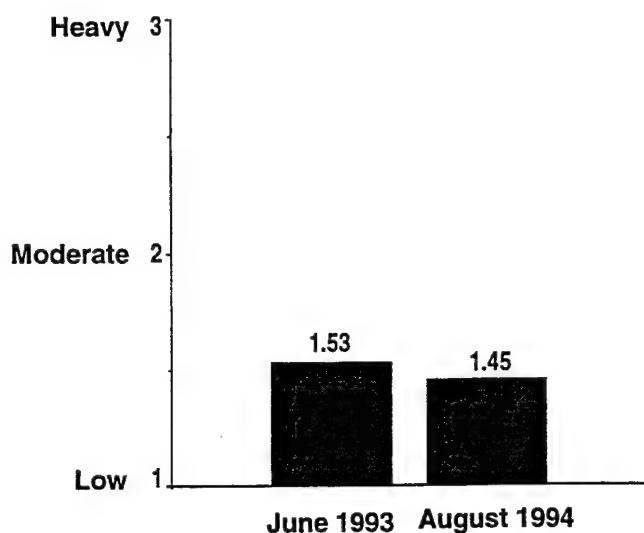


Fig 1.-Mean overall exposure to environmental tobacco smoke among nonsmokers.

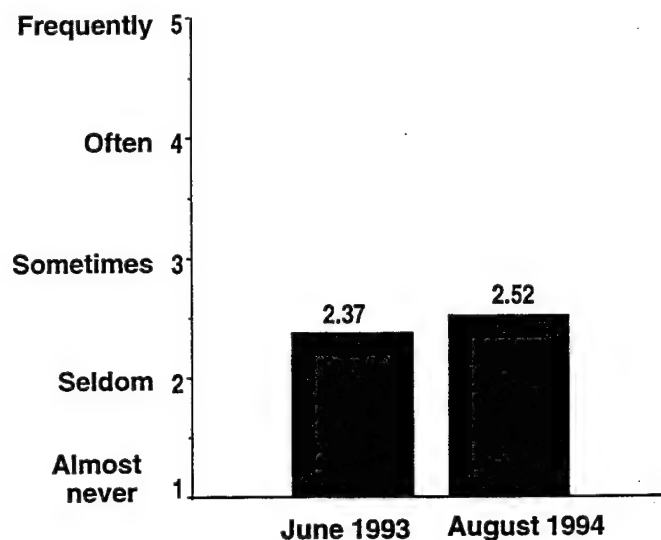


Fig 2.-Mean frequency of exposure to environmental tobacco smoke among nonsmokers.

changes over time in the number of cigarettes smoked per day (approximately 17 cigarettes per day in 1993 and 1994) or in the percentage of current smokeless tobacco users (14% in 1993 and 13% in 1994).

Across all ships in the 1994 survey, the most commonly reported smoking cessation method used in the most recent quit attempt was “cold turkey” (70%), followed by a gradual decrease in the number of cigarettes smoked (31%), substituted candy, gum or food (28%), lower tar and nicotine cigarettes (17%), quit with friends (17%), nicotine gum (6%), military-sponsored smoking cessation course (6%), nicotine transdermal system (the “patch”) (5%), and civilian-sponsored smoking cessation course (2%).

**Attitudes.** Participants across all of the ships reported that the smoking restrictions aboard ship are “somewhat unfair” to “generally fair.” Overall, participants reported that the smoking restrictions aboard ship were enforced “moderately” strictly and that leadership “sometimes” to “usually” set good examples by adhering to the policy. There were small but significant positive increases in these three attitude measures over time from 1993 to 1994. Participants indicated that there was “some” smoking cessation support provided by the command, but the perceived level of support significantly decreased over time. There was no change over time in the self-reported degree to which crew members were allowed to contribute to decisions regarding the smoking policy aboard ship with participants indicating that they were “slightly allowed” to contribute.

The above analyses were also performed on a paired sample. Results of the paired analyses were consistent with the findings from the independent tests on ETS exposure, smoking behavior, and attitudes for the overall group.

### Ship Differences

**ETS exposure.** Between-group analyses of variance revealed that there were significant differences in overall ETS exposure among the ships in 1993 and 1994 (Fig 3). In 1993 nonsmokers aboard *USS America* and *USS Saratoga* reported higher levels of exposure to ETS aboard ship than did nonsmokers aboard the other ships. In 1994, nonsmokers aboard *USS Theodore Roosevelt* reported a lower level of exposure to ETS aboard ship than nonsmokers aboard the other ships; and nonsmokers aboard *USS Saratoga* reported a higher level of exposure to ETS aboard ship than did nonsmokers aboard any of the other ships. Among independent samples of nonsmokers for each of the ships, within-group analyses revealed that nonsmokers aboard *USS America* and *USS Theodore Roosevelt* significantly decreased their subjective overall exposure to ETS from June 1993 to August 1994.

There were significant between-group differences in the frequency of exposure to ETS in 1993 and 1994 (Fig 4). Nonsmokers aboard *USS Saratoga* and *USS America* reported that they were exposed to ETS more often aboard ship than nonsmokers aboard any of the other ships in 1993. In 1994, nonsmokers aboard *USS Saratoga* reported the highest frequency of exposure to ETS of all of the ships; and nonsmokers aboard *USS America* and *USS Theodore Roosevelt* reported that they were exposed less often to ETS aboard ship than nonsmokers aboard any of the other ships. Regarding within-group analyses, independent samples of nonsmokers aboard *USS America* and *USS Theodore Roosevelt* rated the frequency of their exposure to ETS significantly lower in August 1994 than in June 1993. Nonsmokers aboard all of the other ships reported significant increases in the frequency of their exposure to ETS aboard ship.

There were significant differences in the reported number of minutes per day of ETS exposure aboard ship among the ships in both 1993 and 1994. Participants aboard all of the ships except *USS Saratoga* reported a significant decrease in the estimated number of minutes per day exposed to ETS aboard ship from 1993 to 1994 among independent samples of nonsmokers.

In addition, there were significant between-group differences in 1993 and 1994 in how bothersome ETS was and how much physical discomfort was caused by ETS in 1993 and 1994.

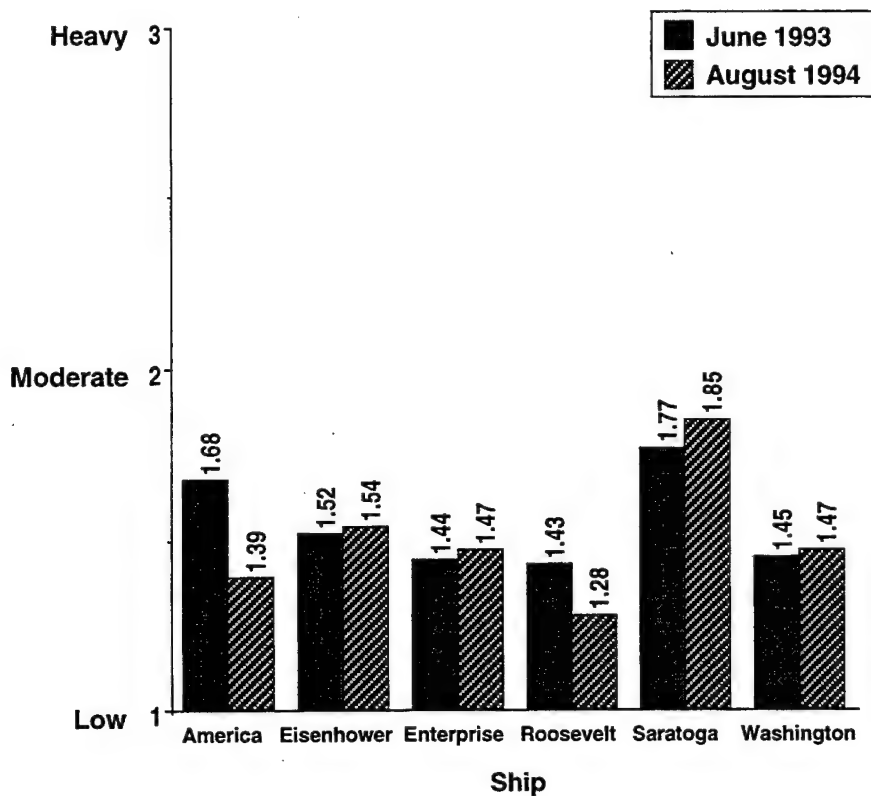


Fig 3.-Mean overall exposure to environmental tobacco smoke among nonsmokers by ship.

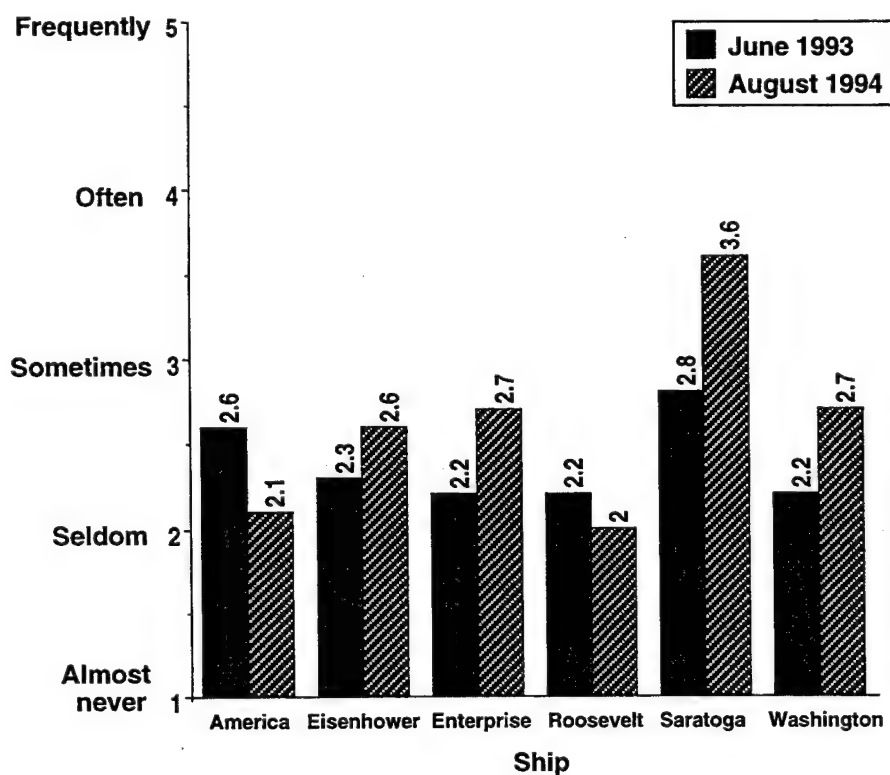


Fig 4.-Mean frequency of exposure to environmental tobacco smoke among nonsmokers by ship.

Considering change over time, independent samples of nonsmokers aboard *USS Theodore Roosevelt* and *USS America* indicated a significant decrease in how bothersome ETS was and in the level of physical discomfort caused by ETS over time.

**Tobacco use behavior.** Fig 5 shows the percentage of self-reported, current cigarette smokers by ship for June 1993 and August 1994. Considering between-group differences,  $\chi^2$  analyses indicated that there were significant differences in the percentages of smokers among the ships in 1993 but not in 1994. The only significant change over time was a decrease in the percentage of cigarette smokers from 38% in June 1993 to 33% in August 1994 among independent samples of crew members aboard *USS Dwight D. Eisenhower*.

One-way ANOVAs revealed that there were significant differences in the number of cigarettes smoked per day among the ships in 1993 and 1994 (Fig 6). However, there were no significant changes in the number of cigarettes smoked per day over time among the independent samples for any of the ships.

Fig 7 shows the percentage of self-reported, current smokeless tobacco users by ship for June 1993 and August 1994. There were significant differences in the percentages of smokeless tobacco users among the ships in both 1993 and 1994. Considering within-group differences over time, the percentage of smokeless tobacco users decreased significantly from 16% in June 1993 to 9% in August 1994 among independent samples of crew members aboard *USS Saratoga*. The percentage of smokeless tobacco users aboard *USS Theodore Roosevelt* significantly increased from 10% in June 1993 to 15% in August 1994.

There were significant differences between the ships in the percentage of participants who reported that the smoking restrictions aboard ship helped them to quit smoking sometime during the last year. Twenty-eight percent of the August 1994 participants aboard *USS Theodore Roosevelt* reported that the smoking restrictions aboard ship helped them quit smoking sometime during the last year. The percentages for the other ships ranged from 21% for *USS America* to 14% for all of the other ships.

**Attitudes.** There were significant differences in all of the attitude measures among the ships in 1993 and 1994. Among independent samples for all of the ships except *USS Enterprise* there was a significant increase in the perceived fairness of the shipboard smoking restrictions over time. In addition, participants aboard all of the ships reported significant increases over time in both the perceived strictness of policy enforcement and in how often they saw leadership adhering to the

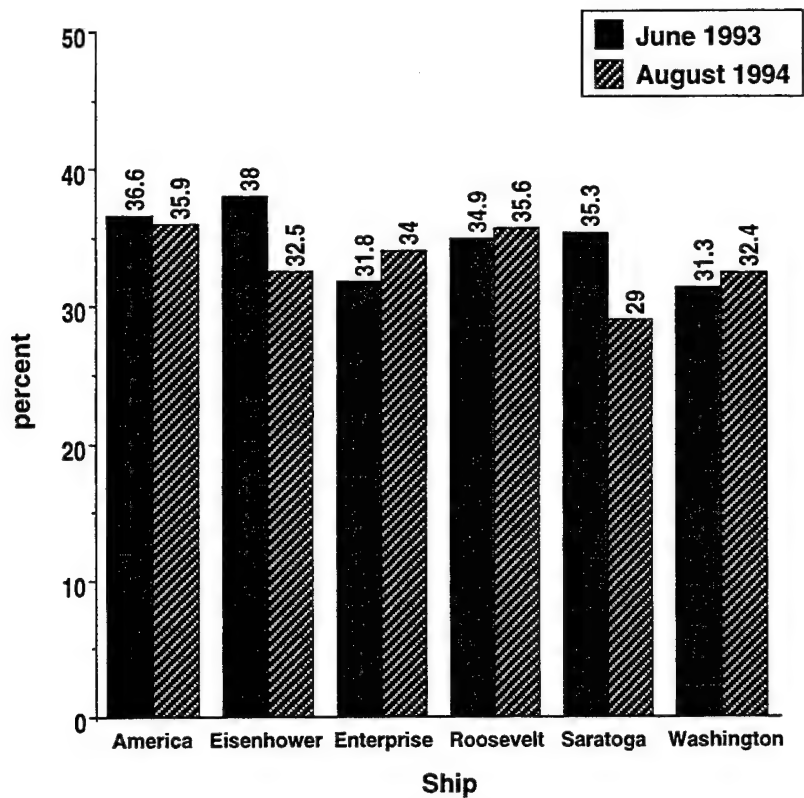


Fig 5.-Percentage of current cigarette smokers by ship.

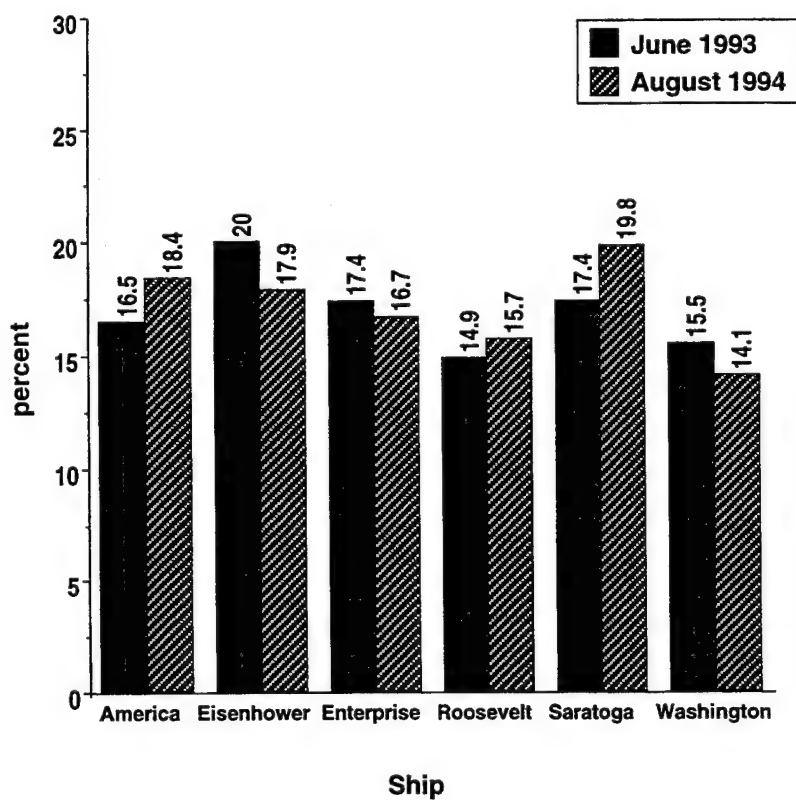


Fig 6.-Mean number of cigarettes smoked per day by ship.

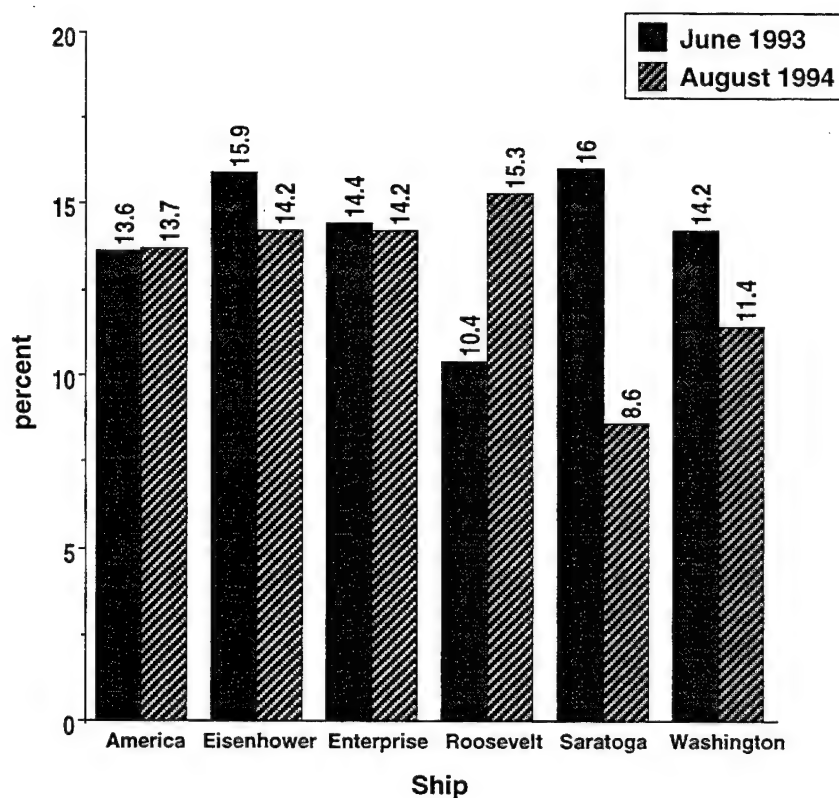


Fig 7.-Percentage of smokeless tobacco users by ship.

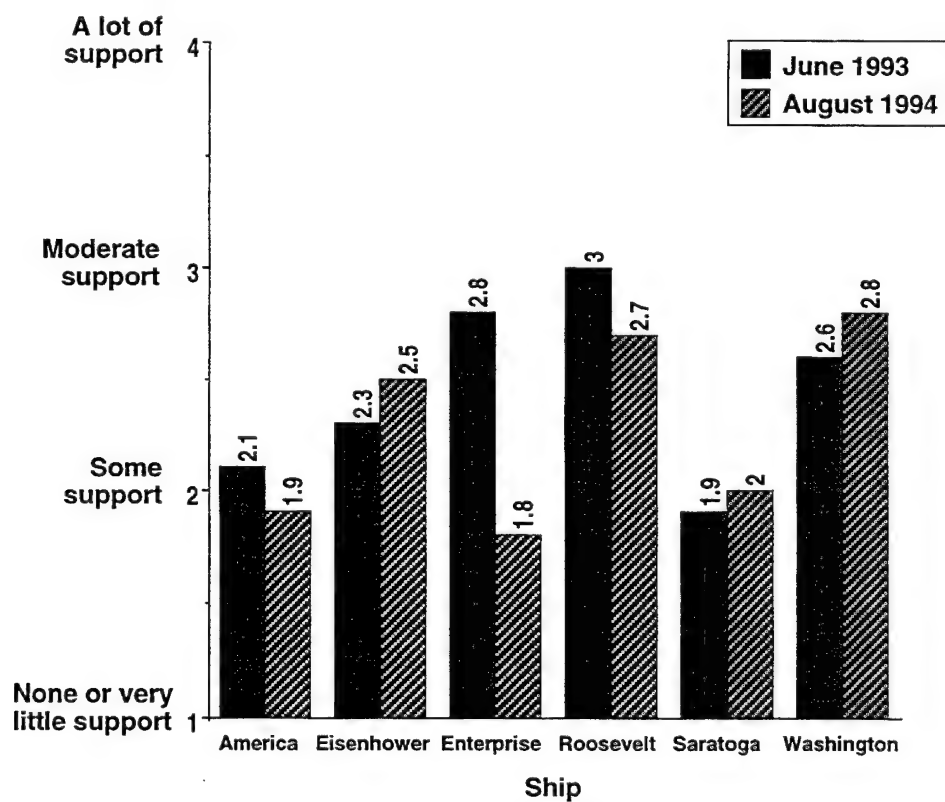


Fig 8.-Mean perceived command-provided smoking cessation support by ship.

smoking policy among the independent samples. Furthermore, independent samples aboard *USS Enterprise* and *USS Theodore Roosevelt* reported a significant increase over time in the degree that they were allowed to contribute to decisions regarding their shipboard smoking policy. The amount of perceived command-provided smoking cessation support increased slightly from 1993 to 1994 among independent samples aboard *USS Dwight D. Eisenhower* and *USS George Washington* from "some" to "moderate" support, and significantly decreased aboard *USS America*, *USS Enterprise*, and *USS Theodore Roosevelt* (Fig 8).

Paired analyses were also performed on ETS exposure, smoking behavior, and attitudes for each ship. Results of the paired analyses generally corroborated the findings from the independent tests for the individual ships.

## DISCUSSION

One of the main objectives of this study was to document exposure of nonsmoking personnel to ETS aboard fleet aircraft carriers. In general, overall exposure to ETS was rated as low to moderate by nonsmokers, and the frequency of that exposure occurred seldom to sometimes using a 5-point scale. It would appear that exposure to ETS is limited in the current shipboard environment. Unfortunately, both surveys in this study took place during the implementation of the COMNAVAIRLANT restrictive smoking policy and therefore a pre- and post-policy comparison was not possible. Still, some interesting findings were observed when individual ships were examined. Significant decreases in ETS exposure, consistent across several measures, were seen among nonsmoking crew members aboard *USS Theodore Roosevelt* and *USS America* from 1993 to 1994. Overall exposure, frequency of exposure, how bothersome ETS was, and the level of discomfort caused by ETS all significantly decreased over time for *USS America* and *USS Theodore Roosevelt*. This may be explained by the fact that these two ships markedly reduced the number of designated smoking areas aboard ship and *USS Theodore Roosevelt* completely banned smoking for period of time during this study. Likewise, there were significant decreases in the number of minutes per day of ETS exposure for these ships as well as for *USS Dwight D. Eisenhower*, *USS Enterprise*, and *USS Washington*.

The findings were not all positive regarding exposure to ETS. Nonsmokers aboard *USS Saratoga* reported the highest overall exposure to ETS and frequency of exposure to ETS in 1993 and 1994. This may be related to the fact that the ship was scheduled to be decommissioned in the fall of 1994. Participants aboard *USS Saratoga* reported that the smoking policy was enforced the least strictly compared to the other ships both in 1993 and 1994. Nevertheless, when considered as a whole, these results suggest that ETS exposure was reduced aboard the aircraft carriers, and the level of smoking restrictions aboard each ship is associated with changes in ETS exposure.

Aside from the expected effect on ETS exposure, we were interested in any additional effects on smoking behavior or attitudes among the participants. Across all of the ships in this study the percentage of current cigarette smokers ranged from 31% to 38% in 1993. This is comparable to the 37% of current smokers found in a Navywide sample in 1992.<sup>26</sup> Findings from this study showed that there was little change in the percentage of current cigarette smokers and no change in the number of cigarettes smoked per day from 1993 to 1994, suggesting that the increase in smoking restrictions among the ships was not enough to significantly affect cigarette use. This was the case even for *USS Theodore Roosevelt* which had a no-smoking policy in effect for about 4 months while deployed during the time of this study. There was no significant change in the percentage of cigarette smokers aboard *USS Theodore Roosevelt* from 1993 to 1994. This finding is consistent with data reported from an earlier survey conducted aboard *USS Theodore Roosevelt* shortly after the no-smoking policy aboard ship was rescinded.<sup>27</sup> The earlier study aboard *USS Theodore Roosevelt* indicated no short-term change in the overall smoking prevalence from the 1993 baseline survey to the post-no-smoking policy survey.

The only significant change in smoking behavior in the present study was seen aboard *USS Dwight D. Eisenhower*. Independent samples from *USS Dwight D. Eisenhower* showed a significant decrease in the percentage of smokers from 1993 to 1994, although this decrease was not supported by the paired data. Because the smoking-designated areas aboard *USS Dwight D. Eisenhower* were not drastically reduced during the course of this study, an alternative explanation for this decrease is the change in the ship's work schedule from the time of the 1993 survey to the 1994 survey. At the time of the first survey in June 1993, *USS Dwight D. Eisenhower* was in a shipyard for an extended overhaul period. During this time the crew had access to many off-duty and off-ship smoking opportunities. At the time of the second survey, *USS Dwight D. Eisenhower* was in the workup stage in which the ship was deployed along the coast for short duration, at-sea periods. Although the crew

had the opportunity to leave the ship during the workup stage, there were fewer smoking opportunities and family and friend interactions than when the ship was in a shipyard. This more restricted environment may have affected the crew's smoking behavior.

In general, attitudes about the fairness of the smoking restrictions, the strictness of enforcement of the tobacco use policy, and leadership support significantly increased toward more positive attitudes regarding the smoking restrictions over time for all of the ships. There was also a significant increase in the degree to which crew members reported that they were allowed to contribute to decisions regarding their ship's smoking restrictions over time and in the amount of command-provided smoking cessation support for some of the ships. Researchers have reported that the organizational acceptance of a tobacco use policy is affected by the level of worker involvement in the development of the policy, leadership support for the policy, clear enforcement procedures, and organizational support for cessation efforts.<sup>28</sup> In general, crew members' attitudes regarding these factors improved over time. However, there was a significant decrease in the amount of perceived command-provided smoking cessation support for other ships. This measure represented the only area in the Attitudes section in which there was a negative change in perceptions regarding the tobacco use policy over time. These findings suggest that commands should increase their tobacco use prevention and cessation activities and/or increase the crews' awareness of these activities in order to show the commands' support for the health of its personnel.

Aside from the noted perceptions regarding the decrease in command-provided smoking cessation support, the only other negative finding of note was an apparent increase in the use of smokeless tobacco aboard some ships. While most ships had prevalence rates of about 14% to 16%, which is comparable to the overall Navy smokeless tobacco use prevalence rate of 15% in 1992,<sup>26</sup> the prevalence of smokeless tobacco users aboard *USS Theodore Roosevelt* significantly increased from 10% in 1993 to 15% in 1994, and from 16% to 22% among a paired sample aboard *USS Enterprise*. In contrast, data from a worldwide survey of Department of Defense military personnel suggests that no change has occurred in the rate of smokeless tobacco use from 1988 to 1992.<sup>26</sup> The increased use of smokeless tobacco among some of the participants in this study is of concern. First, smokeless tobacco use is prohibited aboard the carriers. More importantly, it would be of concern if sailors switched from cigarettes to smokeless tobacco or started to use smokeless tobacco because of the "inconveniences" related to the increased smoking restrictions.

The strengths of this study include data collection from large numbers of crew members aboard six aircraft carriers in the U.S. Atlantic Fleet and a repeated-measures design. Limitations of the study include the reliance on self-reported measures for smoking behavior and ETS exposure, a low follow-up response rate and possible response bias, and the absence of a control group. It is possible that there may be some systematic bias in the self-reporting of smoking given that there was high-level, strong support for the smoking restrictions, which may have affected the results. However, self-report survey measures have been considered useful for classifying broad categories of ETS exposure levels.<sup>8</sup> The loss of participants between the 1993 and 1994 surveys may have implications for the generalizability of the findings. In addition, Navy leadership and media attention given to the issue of smoking in the Navy makes it problematic to differentiate the effects of societal trends (both within the military and in the civilian sector) from the effects of the ships' restrictive smoking policies; therefore, results should be interpreted within this context.

Findings from this study indicate that there were significant reductions in ETS exposure, with more consistent reductions among ships that had greater declines in the number of designated smoking areas during the time of the study. All ships showed an increase in favorable attitudes toward the smoking restrictions, with the exception of command-provided cessation support. Unfortunately, however, there was very little change in the smoking rate among crew members aboard the six aircraft carriers during the time of the increased smoking restrictions. In addition, there was an increase in smokeless tobacco use among some of the ships' crew members. Although these changes in ETS exposure, smoking behavior, and attitudes cannot be attributed solely to the intensified smoking restrictions aboard the carriers, these changes did occur at a time when increased attention was being given to shipboard tobacco use policy and ETS exposure. Based on the findings from this study, recommendations include maintaining enforcement of the current smoking restrictions in order to keep ETS exposure at the reduced low level; emphasizing smokeless tobacco use prevention and cessation as part of a comprehensive tobacco use cessation program; and increasing command-provided smoking cessation activities, raising crew members' awareness of these activities, and maintaining a high level of command support for participation in these activities.

### **Acknowledgements**

The authors gratefully thank the Commanding Officers, Senior Medical Officers and all of the officers, chief petty officers and enlisted men aboard *USS America (CV 66)*, *USS Dwight D. Eisenhower (CVN 69)*, *USS Enterprise (CVN 65)*, *USS Theodore Roosevelt (CVN 71)*, *USS Saratoga (CV 60)*, and *USS George Washington (CVN 73)* for their cooperation and efforts in collecting data used in this study.

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# AIRLANT Tobacco Use Policy - Opinion Survey

## Information to Participants

All carrier personnel are being asked to voluntarily complete this brief survey giving honest responses and opinions about AIRLANT tobacco use policy and restrictions. This information will be used to provide feedback to AIRLANT. Please answer all the questions honestly and to the best of your ability. Your responses are for research use only and will be kept strictly confidential. Data will be reported so that no individual participant can be identified and will not become part of anyone's official records. If you have any questions about this survey, please contact Ms. Suzanne L. Hurtado, Naval Health Research Center, San Diego, CA 92166-5122/DSN: 553-8469; Commercial: (619) 553-8469.

## Privacy Act Statement

1. Authority. 5 USC 301, 10 USC 1071. 2. Purpose. Medical research information will be collected to enhance basic medical knowledge or to develop tests, procedures, and equipment to improve the diagnosis, treatment, or prevention of illness, injury or performance impairment. 3. Use. Medical research information will be used for statistical analyses and reports by the Departments of the Navy, Defense, and other U.S. government agencies, provided this is compatible with the purpose for which the information was collected. Use of the information may be granted to non-Government agencies or individuals by the Chief, Bureau of Medicine and Surgery, in accordance with the provisions of the Freedom of Information Act. 4. Disclosure. I understand that all information derived from the study will be retained at the Naval Health Research Center, San Diego, and that my anonymity will be maintained. I voluntarily agree to its disclosure to agencies or individuals identified in the preceding paragraph, and I have been informed that failure to agree to such disclosure may negate the purposes of the study.

Please circle one of the choices or print neatly in the blank.

### 1. Ship currently serving on:

1. USS AMERICA
2. USS SARATOGA
3. USS ENTERPRISE
4. USS FORRESTAL
5. USS GEORGE WASHINGTON
6. USS JOHN F. KENNEDY
7. USS THEODORE ROOSEVELT
8. USS DWIGHT D. EISENHOWER

### 2. What department do you work in?

1. AIMD
2. Air
3. Communications
4. Engineering
5. EXEC/ADMIN
6. Medical/Dental
7. Navigation
8. Operations
9. SMMD/3M
10. Supply
11. Weapons/Mar Det
12. Other

### 3. Today's date: / /

Month Day Year

### 4. LAST SIX digits of Social Security No.:

(For study purposes only; cannot be used for personal identification.)

### 5. Sex: 1. Male 2. Female

### 6. Age:

### 7. Highest level of education:

1. Did not graduate from high school
2. GED or ABE certificate
3. High school graduate
4. Trade or technical school graduate
5. Some college
6. 4-year college degree
7. Graduate or professional study but no degree
8. Graduate or professional degree

### 8. Paygrade:

- |          |         |
|----------|---------|
| Enlisted | Officer |
| 1. E-1   | 10. W-1 |
| 2. E-2   | 11. W-2 |
| 3. E-3   | 12. W-3 |
| 4. E-4   | 13. W-4 |
| 5. E-5   | 14. O-1 |
|          | 15. O-2 |
|          | 16. O-3 |
|          | 17. O-4 |
|          | 18. O-5 |
|          | 19. O-6 |

### 9. Marital Status:

1. Single, never married and not living as married
2. Married or living as married
3. Separated/divorced/widowed and not living as married

### 10. Race:

1. American Indian/Alaskan Native
2. Black
3. Hispanic
4. Oriental/Asian/Filipino
5. White
6. Other

## EXPOSURE TO TOBACCO SMOKE

### 11. Do any members of your current household smoke, other than yourself? (Circle all that apply.)

0. No members of current household smoke
1. Spouse/partner
2. Roommate(s)
3. Other(s)

### 12. In your immediate work environment aboard ship, how many people smoke around you?

- 0 1 2 3 4 5 6 7 8 9 10-20 21+

### 13. How would you rate your overall exposure to other people's tobacco smoke aboard ship?

1. low
2. moderate
3. heavy

### 14. When on duty aboard ship, how often are you exposed to other people's tobacco smoke?

1. Almost never
2. Seldom (less than once a week)
3. Sometimes (1-5 times per week)
4. Often (1-2 times per day)
5. Frequently (3 or more times per day)

### 15. When off duty aboard ship how often are you exposed to other people's tobacco smoke?

1. Almost never
2. Seldom (less than once a week)
3. Sometimes (1-5 times per week)
4. Often (1-2 times per day)
5. Frequently (3 or more times per day)

### 16. On the average, how many minutes per day are you exposed to other people's tobacco smoke aboard ship?

- \_\_\_\_\_ minutes per day
0. Not exposed

### 17. How bothered are you by other people's tobacco smoke aboard ship?

1. Not at all bothered
2. Seldom bothered
3. Somewhat bothered
4. Quite bothered
5. Extremely bothered

### 18. How much physical discomfort does other people's tobacco smoke aboard ship cause you (irritated eyes, nose, throat, or lower respiratory tract, etc.)?

1. No discomfort
2. Some discomfort
3. Moderate discomfort
4. Great discomfort

### 19. Where aboard ship are you typically exposed to other people's tobacco smoke? (Circle all that apply.)

0. I am rarely exposed to other people's tobacco smoke aboard ship
1. My usual work area
2. Head
3. Enlisted messing areas
4. Officer messing areas
5. Berthing area
6. Designated "smoking areas"
7. Other

## ATTITUDES TOWARD SMOKING POLICY

### 20. Are you aware of AIRLANT's smoking policy aboard ship that states "...a no-smoking environment shall be the norm for COMNAVIAIRLANT ships?"

0. No
1. Yes

### 21. How did you find out about AIRLANT's restricted smoking policy aboard ship? (Circle all that apply.)

1. Do not know about the policy
2. POD notice
3. Shipboard announcement (e.g., quarters)
4. Division Officer
5. LCPO
6. Read the instruction
7. Other

### 22. Are you in favor of AIRLANT's restricted smoking policy aboard ship?

0. No
1. Yes

### 23. How fair do you think AIRLANT's smoking policy is?

1. Very unfair
2. Somewhat unfair
3. Generally fair
4. Very fair

### 24. To what degree are you allowed to contribute to decisions regarding the smoking policy aboard your ship?

1. Not at all allowed
2. Slightly allowed
3. Somewhat allowed
4. Very much allowed

### 25. How much support (e.g., smoking cessation classes and materials, incentives for quitting) has your ship provided to help smokers quit?

1. None or very little support
2. Some support
3. Moderate support
4. A lot of support

### 26. Do you see leadership setting good examples of adherence to AIRLANT's smoking policy?

1. Not at all
2. Sometimes
3. Usually
4. Always

### 27. How strictly is AIRLANT's smoking policy being enforced?

1. Not at all strictly
2. Somewhat strictly
3. Moderately strictly
4. Very strictly

### 28. Which one of these statements best reflects your current use of any tobacco products?

1. Smoke at work (including breaks)
2. Do not smoke at work but use smokeless tobacco products (chewing tobacco or snuff) when at work
3. Do not use tobacco products at work, but use tobacco products when not at work
4. Quit using tobacco products altogether
5. Never used tobacco products

### 29. Do you plan to request a transfer off of your ship specifically because of the no-smoking policy?

0. No
1. Yes

### 30. What percent of Navy enlisted personnel aboard your ship do you think smoke?

\_\_\_\_\_ %

### 31. What percent of Navy officers aboard your ship do you think smoke?

\_\_\_\_\_ %

As a result of AIRLANT's smoking policy ...?

|  |           |                 |           |              |
|--|-----------|-----------------|-----------|--------------|
| 32. Has the amount of cigarettes you smoke .....                             | Decreased | Stayed the same | Increased | NA/Don't use |
| 33. Has your use of smokeless tobacco .....                                  | 1         | 2               | 3         | 4            |
| 34. Has your smoking when aboard ship .....                                  | 1         | 2               | 3         | 4            |
| 35. Has your exposure to other people's tobacco smoke when aboard ship ..... | 1         | 2               | 3         | 4            |
| 36. Has your smoking when not aboard ship .....                              | 1         | 2               | 3         | 4            |

TOBACCO USE

37. Have you smoked at least 100 cigarettes in your life?

0. No 1. Yes

38. Please mark your current status for each tobacco product.

|                                       | NEVER USED | FORMER USER | CURRENT USER |
|---------------------------------------|------------|-------------|--------------|
| a. cigarettes .....                   | 1          | 2           | 3            |
| b. chewing tobacco/snuff or dip ..... | 1          | 2           | 3            |
| c. cigars/pipe tobacco .....          | 1          | 2           | 3            |

39. When you are aboard ship, do you use any of these tobacco products?

|                                       | NO | YES |
|---------------------------------------|----|-----|
| a. cigarettes .....                   | 0  | 1   |
| b. chewing tobacco/snuff or dip ..... | 0  | 1   |
| c. cigars/pipe tobacco .....          | 0  | 1   |

40. When you are not aboard ship, do you use any of these tobacco products?

|                                       | NO | YES |
|---------------------------------------|----|-----|
| a. cigarettes .....                   | 0  | 1   |
| b. chewing tobacco/snuff or dip ..... | 0  | 1   |
| c. cigars/pipe tobacco .....          | 0  | 1   |

41. At what age did you first start using tobacco products fairly regularly?

0. NA, never have used tobacco  
1. Was under 12 years old  
2. 12 - 14 years old  
3. 15 - 17 years old  
4. 18 - 20 years old  
5. 21 or older

42. For how many years have you used (or did you use) tobacco on a regular basis (do not include any time when you quit using tobacco)?

|    |    |    |    |    |     |       |   |   |
|----|----|----|----|----|-----|-------|---|---|
| 1  | 2  | 3  | 4  | 5  | 6   | 7     | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15+ | YEARS |   |   |

99. NA, never have used tobacco  
0. Less than one year

3

47. On the average how many days per month do you smoke cigars or a pipe?

0. Never in the past 12 months or  
Don't use cigars or a pipe  
1. Once or twice in the past 12 months  
2. 3 - 6 days in the past 12 months  
3. 7 - 11 days in the past 12 months  
4. About once a month  
5. 2 - 3 days a week  
6. 1 - 2 days a week  
7. 3 - 4 days a week  
8. 5 - 6 days a week  
9. About every day

48. On days you smoke cigars or a pipe, how many cigars or bowls do you usually smoke?

- 0/NA 1 2 3 4 5 6 7 8 9+

49. How many times have you (or did you) seriously try to quit using tobacco?

- 0 1 2 3 4 5 6 7 8 9+ TIMES

99. Never have used tobacco

51. Comments

50. Just thinking of the most recent time you tried to quit smoking, what method(s) did you use? (Circle all that apply)

0. NA, never have used tobacco products  
1. Never have tried to quit  
2. Civilian program or course  
3. Military program or course  
4. Psychologist or psychiatrist  
5. Hypnosis  
6. Special filters or holders  
7. Lower tar and nicotine cigarettes  
8. Nicorette (nicotine gum)  
9. The "patch" (nicotine transdermal system)  
10. With friends, relatives, or acquaintances  
11. Gradually decreased the number  
12. Substituted candy, gum, or food  
13. "COLD TURKEY"  
14. Other methods

Thank you for completing this survey!

4

# **AIRLANT CARRIER TOBACCO USE SURVEY**

## **Information to Participants**

As you may already know, the Naval Health Research Center is conducting a study of tobacco use and tobacco-use policy aboard Airlant carriers. All Airlant carrier personnel are being asked to voluntarily complete this brief follow-up survey giving honest responses and opinions related to tobacco-use policy aboard ship. Please answer all the questions honestly and to the best of your ability. Your responses are for research use only and will be kept strictly confidential. Data will be reported so that no individual participant can be identified and will not become part of anyone's official records. If you have any questions about this survey, please contact Ms. Suzanne L. Hurtado, Naval Health Research Center, San Diego, CA 92186-5122/DSN: 553-8469; Commercial: (619) 553-9469.

## **Privacy Act Statement (OPNAV Report Control No. 6280-2)**

1. Authority: 5 USC 301, 10 USC 1071. 2. Purpose: Medical research information will be collected to enhance basic medical knowledge or to develop tests, procedures, and equipment to improve the diagnosis, treatment, or prevention of illness, injury or performance impairment. 3. Use: Medical research information will be used for statistical analyses and reports by the Departments of the Navy, Defense, and other government agencies, provided this is compatible with the purpose for which the information was collected. Use of the information may be granted to non-government agencies or individuals by the Chief, Bureau of Medicine and Surgery, in accordance with the provisions of the Freedom of Information Act. 4. Disclosure: I understand that all information derived from the study will be retained at the Naval Health Research Center, San Diego, and that my anonymity will be maintained. I voluntarily agree to its disclosure to agencies or individuals identified in the preceding paragraph, and I have been informed that failure to agree to such disclosure may negate the purposes of the study.

Please darken in the oval next to your answer. Use a dark lead pencil. Do not use ink. Please be sure to fill in the ovals completely.

- Ship currently serving on:
  - ☐ USS AMERICA
  - ☐ USS THEODORE ROOSEVELT
  - ☐ USS DWIGHT D. EISENHOWER
  - ☐ USS ENTERPRISE
  - ☐ USS GEORGE WASHINGTON

- What department do you work in:
  - ☐ AIMO
  - ☐ Medical/Dental
  - ☐ Weapons/Mar Det
  - ☐ Air
  - ☐ Navigation
  - ☐ Nuclear
  - ☐ Communications
  - ☐ Operations
  - ☐ Other
  - ☐ Engineering
  - ☐ SNMDD/3M
  - ☐ EXEC/ADMIN
  - ☐ Supply

- Today's Date:
 

|             |             |             |
|-------------|-------------|-------------|
| MO          | DAY         | YR          |
| (1) (2) (3) | (1) (2) (3) | (1) (2) (3) |

- LAST SIX digits of Social Security No.:
 

|                         |
|-------------------------|
| (1) (2) (3) (4) (5) (6) |
|-------------------------|

 (For study purposes only; cannot be used for personal identification.)

- Sex:
  - ☐ Male
  - ☐ Female

- Age:
 

|                                     |
|-------------------------------------|
| (1) (2) (3) (4) (5) (6) (7) (8) (9) |
|-------------------------------------|

- Years of education: (Mark only one response)
  - ☐ Less than 12 years
  - ☐ High school graduate or equivalent
  - ☐ More than 12 years

- Paygrade:
  - Enlisted ☐ E-1 ☐ E-2 ☐ E-3 ☐ E-4 ☐ E-5 ☐ E-6 ☐ E-7 ☐ E-8 ☐ E-9
  - Officer ☐ O-1 ☐ O-2 ☐ O-3 ☐ O-4 ☐ O-5 ☐ O-6

- Marital Status:
  - ☐ Single, never married and not living as married
  - ☐ Married or living as married
  - ☐ Separated/divorced/widowed and not living as married

## **EXPOSURE TO TOBACCO SMOKE**

- How would you rate your overall exposure to other people's tobacco smoke aboard ship?
  - ☐ Low
  - ☐ Moderate
  - ☐ Heavy
- How often are you exposed to other people's tobacco smoke aboard ship?
  - ☐ Almost never
  - ☐ Seldom (less than once a week)
  - ☐ Often (1-2 times per day)
  - ☐ Sometimes (1-6 times per week)

DO NOT MARK IN THIS AREA

11300

(August 1994)

# **EXPOSURE TO TOBACCO SMOKE (Cont.)**

- On the average, how many minutes per day are you exposed to other people's tobacco smoke aboard ship?
 

|  |
|--|
| (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) |
|--|
- In your immediate work environment aboard ship, how many people smoke around you?
 

|  |
|--|
| (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) |
|--|

- Where aboard ship are you typically exposed to other people's tobacco smoke?
 

(Mark here if you are never (or rarely) exposed to other people's tobacco smoke aboard ship, and go to #16)

  - ☐ Never (or rarely) exposed
  - ☐ My usual work area
  - ☐ Head
  - ☐ Enlisted messing area
  - ☐ Officer messing area
  - ☐ Berthing area
  - ☐ Designated smoking areas
  - ☐ Other

- How bothered are you by other people's tobacco smoke aboard ship?
  - ☐ Not at all bothered
  - ☐ Quite bothered
  - ☐ Seldom bothered
  - ☐ Extremely bothered

- How much physical discomfort does other people's tobacco smoke aboard ship cause you (irritated eyes, nose, throat, or lower respiratory tract, etc.)?
  - ☐ No discomfort
  - ☐ Some discomfort
  - ☐ Moderate discomfort
  - ☐ Great discomfort

- Do any members of your current household smoke?
  - ☐ Yes
  - ☐ No

- Are you aware of COMNAVIAIRLANT's smoking policy aboard ship that states "... a no-smoking environment shall be the norm for COMNAVIAIRLANT ships"?
  - ☐ Yes
  - ☐ No

- Are you aware of the recent ALNAV message which states that if weather deck spaces are not available, the Commanding Officer will designate one or more normally unmanned space, judged to not recirculate secondhand smoke, within the ship for smoking?
  - ☐ Yes
  - ☐ No

- Are you in favor of designated smoking areas aboard ship?
  - ☐ Yes
  - ☐ No

- If you are a nonsmoker, do the designated smoking areas adequately protect you from secondhand smoke aboard your ship?
  - ☐ Yes
  - ☐ No

- Would you be in favor of a total no-smoking policy aboard ship?
  - ☐ Yes
  - ☐ No

- How fair do you think your ship's smoking restrictions are?
  - ☐ Very unfair
  - ☐ Somewhat unfair
  - ☐ Generally fair
  - ☐ Very fair

- To what degree are you allowed to contribute to decisions regarding the smoking policy aboard ship?
  - ☐ Not at all allowed
  - ☐ Slightly allowed
  - ☐ Somewhat allowed
  - ☐ Very much allowed

- How much support (e.g., smoking cessation classes and materials, incentives for quitting) does your ship provide to help smokers quit?
  - ☐ None or very little support
  - ☐ Some support
  - ☐ Moderate support
  - ☐ A lot of support

27. How often do you see leadership setting good examples of adhering to smoking restrictions aboard ship?  
☐ Not at all ☐ Sometimes ☐ Usually ☐ Always
28. How strictly are the smoking-designated areas aboard ship enforced?  
☐ Not at all strictly ☐ Somewhat strictly ☐ Moderately strictly ☐ Very strictly
29. How often do people "sneak" a cigarette in non-designated smoking areas aboard ship?  
☐ Almost never ☐ Rarely ☐ Sometimes ☐ Usually ☐ All of the time

#### TOBACCO USE

30. Please mark your status for each tobacco product.

|                                 | Never Used            | Former User           | Current User          | No                    | Yes                   |
|---------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. cigarettes                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. chewing tobacco/snuff or dip | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. cigars/pipe tobacco          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

32. When you are not aboard ship, do you use any of these tobacco products?

|                                 | No                    | Yes                   |
|---------------------------------|-----------------------|-----------------------|
| a. cigarettes                   | <input type="radio"/> | <input type="radio"/> |
| b. chewing tobacco/snuff or dip | <input type="radio"/> | <input type="radio"/> |
| c. cigars/pipe tobacco          | <input type="radio"/> | <input type="radio"/> |

33. If you quit smoking during the last year, did the smoking restrictions aboard ship help you to quit?

☐ No - I intended to quit smoking regardless of the smoking restrictions aboard ship  
☐ Yes - I quit smoking due to the smoking policy aboard ship

In general, over the past year...

|   | Decreased             | Stayed the same       | Increased             | NA/Don't use          |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| 34. Has the overall amount of cigarettes you smoke    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 35. Has your use of smokeless tobacco                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 36. Has your smoking when aboard ship                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 37. Has your smoking when not aboard ship             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 38. Has your exposure to other people's tobacco smoke | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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#### TOBACCO USE HISTORY (Cont.)

44. How many times have you (or did you) seriously try to quit using tobacco?  
☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9+

45. Just thinking of the most recent time you tried to quit smoking, what method(s) did you use? (Mark all that apply)

|   | NO                    | YES                   |
|---|-----------------------|-----------------------|
| Nicotine (nicotine gum)                   | <input type="radio"/> | <input type="radio"/> |
| The "patch" (nicotine transdermal system) | <input type="radio"/> | <input type="radio"/> |
| Smoking cessation class/military          | <input type="radio"/> | <input type="radio"/> |
| Smoking cessation class/civilian          | <input type="radio"/> | <input type="radio"/> |
| With friends, relatives, or acquaintances | <input type="radio"/> | <input type="radio"/> |
| Gradually decreased the number            | <input type="radio"/> | <input type="radio"/> |
| Substituted candy, gum, or food           | <input type="radio"/> | <input type="radio"/> |
| Other methods                             | <input type="radio"/> | <input type="radio"/> |

46. Did you use the "patch" provided by your ship to attempt to quit smoking over the past year?

☐ No ☐ Yes ☐ NA - I'm a nonsmoker

47. If "yes" to #46, did the "patch" help you successfully quit smoking cigarettes?

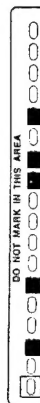
☐ No ☐ Yes ☐ NA

48. Mark here if you have comments:

☐ Yes, I have comments

Comments regarding smoking policy:

Thank you for participating!



11300

If you have never used any tobacco products, please mark here and go to #48.

☐ I have never used any tobacco products

#### TOBACCO USE HISTORY

39. Have you smoked at least 100 cigarettes in your life?

☐ No ☐ Yes

40. For how many years have you used (or did you use) tobacco on a regular basis (do not include any time when you quit using tobacco)?

|                          |                          |                           |   |  |                          |
|--------------------------|--------------------------|---------------------------|---|--|--------------------------|
| <input type="radio"/> 1  | <input type="radio"/> 2  | <input type="radio"/> 3   | <input type="radio"/> 4                     | <input type="radio"/> 5                  | <input type="radio"/> 6  |
| <input type="radio"/> 7  | <input type="radio"/> 8  | <input type="radio"/> 9   | <input type="radio"/> 10                    | <input type="radio"/> 11                 | <input type="radio"/> 12 |
| <input type="radio"/> 13 | <input type="radio"/> 14 | <input type="radio"/> 15+ | <input type="radio"/> NA/never used tobacco | <input type="radio"/> Less than one year |                          |

41. During the past 30 days, how many cigarettes did you usually smoke on a typical day when you smoked?

☐ Don't smoke, or none in the last 30 days ☐ Fewer than 1 cigarette on the average day  
☐ 1-10 cigarettes ☐ 11-20 cigarettes  
☐ 21-30 cigarettes ☐ 31-40 cigarettes  
☐ 41-55 cigarettes ☐ 56 or more cigarettes

42. On days you use smokeless tobacco, how many times per day do you usually dip or chew?

☐ 0/NA ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9+

43. On days you smoke cigars or a pipe, how many cigars or bowlfuls do you usually smoke?

☐ 0/NA ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9+

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| 13. ABSTRACT (Maximum 200 words)<br><br>The objective of this study was to document crew members' subjective exposure to environmental tobacco smoke (ETS), smoking behavior, and attitudes regarding smoking policy aboard U.S. Atlantic Fleet carriers during a time of increased restrictions on tobacco use and to examine differences in exposure to ETS, tobacco use behavior, and attitudes among ships. Participants included 9,996 crew members aboard six aircraft carriers in the U.S. Atlantic Fleet who voluntarily completed a tobacco use survey in June 1993 and 8,348 crew members who voluntarily completed another tobacco use survey in August 1994. Overall, exposure to ETS among nonsmokers was relatively low and significantly decreased over time. The overall percentage of current smokers remained steady at 34% in both 1993 and 1994. In general, there were positive increases in attitudes regarding the ship's smoking policies. Considering individual ships, there were significant decreases in ETS exposure consistent across several measures over time for nonsmokers aboard <i>USS America</i> and <i>USS Theodore Roosevelt</i> . These results indicate that there were significant reductions in ETS exposure with more consistent reductions among ships that had greater declines in the number of designated smoking areas; however, there was very little change in the smoking rate among crew members during the time of the increased smoking restrictions. |  |  |   |                                 |
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